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## DIAPER CHANGING APPARATUS AND METHODS

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### FIELD OF THE INVENTION

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The present disclosure relates to diaper changing apparatus and methods, and more specifically, to apparatus having a removable changing mat operatively coupled to an outside surface of a diaper carrying bag.

### BACKGROUND OF THE INVENTION

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Diapers are useful and ubiquitous products that occupy a prominent place in the lives of parents and care-givers in virtually every country around the world. Whether disposable or reusable, diapers are almost the exclusive choice of clothing for a variety of wearers, including, for example, younger children (*e.g.* babies, toddlers, etc.) and certain persons with disabilities. In many public areas frequented by parents, it is common to see parents carrying both their infants and the ever-present diaper bag.

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Conventional diaper bags are typically characterized by a relatively large compartment suited to carry an assortment of diapers, wipes, lotions, baby bottles, and a

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variety of other products useful for the task of caring for an infant. Other conventional devices also provide a surface upon which to lay the infant during changing operations, including, for example, the devices disclosed in U.S. Patent No. 6,298,509 B1 issued to Vickers, U.S. Patent No. 5,692,257 issued to Albertieri, U.S. Patent No. 5,649,658 issued to Hoffman *et al.*, U.S. Patent No. 5,615,433 issued to Martin, U.S. Patent No. 4,917,505 issued to Bullard *et al.*, U.S. Patent No. 4,566,130 issued to Coates, and U.S. Patent No. 4,154,323 issued to Sneider.

Although desirable results have been achieved using such prior art devices, there is room for improvement. For example, several prior art apparatus require the diaper bag to be substantially disassembled in order to form the changing surface. This requires that the parent or care-giver unload the diaper bag prior to performing a changing procedure in order to form the changing surface, and then to reassemble and reload the diaper bag after the changing procedure is complete. This obviously adds inconvenience to the diaper changing procedure. Furthermore, other prior art apparatus have storage compartments located within the changing surface portion of the apparatus, which again may require the care-giver to unload portions of the apparatus, or alternately, which may cause the infant to suffer discomfort during the diaper changing procedure due to objects stored in the compartments. Therefore, diaper changing apparatus and methods that mitigate these adverse characteristics would be useful.

#### SUMMARY OF THE INVENTION

The present invention is directed to diaper changing apparatus and methods that mitigate several of the disadvantages of prior art changing devices. Embodiments of apparatus and methods in accordance with the present invention may advantageously improve the efficiency of the diaper changing process, and may improve the comfort of the baby during a changing operation.

In one embodiment, a diaper changing assembly in accordance with the present invention includes a bag member partially enclosing an interior region and forming an access opening leading thereto. The bag member includes an outer surface having at least one first



securing member formed thereon. A changing mat is operatively coupled to the outer surface and has at least one second securing member formed thereon. The changing mat is foldable into a plurality of portions such that in a closed position, the plurality of portions are positionable proximate the outer surface and the first and second securing members are engageable with the changing mat occupying a stowed position external to the bag member. In an open position, the plurality of portions may be unfolded to provide an elongated changing surface. The bag member remains substantially unchanged during articulation of the changing mat between the open and closed positions. In an alternate aspect, the changing mat is removably coupled to the bag member. In a further aspect, the changing mat includes a compartmentless exterior surface. In yet another embodiment, the changing mat includes a pillow member disposed therein.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The preferred and alternative embodiments of the present invention are described in detail below with reference to the following drawings.

FIGURE 1 is a front perspective view of a diaper changing assembly in an open position in accordance with an embodiment of the present invention;

FIGURE 2 is a front perspective view of the diaper changing assembly of FIGURE 1 in a closed position;

FIGURE 3 is a side elevational view of the diaper changing assembly of FIGURE 2;

FIGURE 4 is a rear perspective view of the diaper changing assembly of FIGURE 2; and

FIGURE 5 is an enlarged elevational view of an alternate embodiment of first and second attachment devices of the diaper changing assembly of FIGURE 2.

#### DETAILED DESCRIPTION OF THE INVENTION

The present invention relates to present diaper changing apparatus and methods, and more specifically, to diaper changing apparatus having a removable changing mat operatively coupled to an outside surface of a diaper carrying bag. Many specific details of certain



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embodiments of the invention are set forth in the following description and in FIGURES 1-5 to provide a thorough understanding of such embodiments. One skilled in the art, however, will understand that the present invention may have additional embodiments, or that the present invention may be practiced without several of the details described in the following description.

FIGURE 1 is a front perspective view of a diaper changing assembly 100 in accordance with an embodiment of the present invention. In this embodiment, the diaper changing assembly 100 includes a bag member 110 removeably coupled to a changing mat 120. As described more fully below, the diaper changing assembly 100 advantageously allows diapers, wipes, lotions, and other supplies to be conveniently stored for transport in the bag member 110, and with the changing mat 110 deployed in an open position 102, the items within the bag member 110 remain readily accessible during a diaper changing operation. These and other advantages of the diaper changing assembly 100 will become apparent in the following discussion.

As shown in FIGURE 1, in this embodiment, the bag member 110 has an approximately rectangular or box-like shape having a pair of opposing side panels, a pair of opposing end panels, and a bottom panel (not visible). A pocket 112 (*e.g.* for baby bottles, etc.) is coupled to one of the end panels of the bag member 110. One or more handles 114 may be coupled to the side panels to facilitate carrying of the diaper changing assembly 100. The panels of the bag member 110 cooperate to partially enclose an interior region 116 into which the diapers, wipes, lotions, and other desired changing supplies may be stored. It will be appreciated, however, that a variety of alternate embodiments of the bag member 110 may be readily conceived, and that the invention is not limited the particular embodiment of the bag member 110 described above and shown in the accompanying figures.

As further shown in FIGURE 1, the changing mat 120 may be removeably coupled to a lower portion of the bag member 110 by a coupling device 122. In a preferred embodiment, the changing mat 120 has no pockets or storage compartments for carrying supplies. In one particular embodiment, the coupling device 122 may be a zipper. Alternately, however, the coupling device 122 may be one or more snaps, buttons, hook-and-loop fasteners (*e.g.* VELCRO®), or any other suitable coupling device. In further




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embodiments, the changing mat 120 may be permanently coupled (*e.g.* integrally formed, sewn, glued, heat bonded, etc.) to the bag member 110.

In the embodiment shown in FIGURE 1, the changing mat 120 is a tri-panel, foldable changing mat, and includes a padded portion 124 for cushioning a baby's head during use.

5 Attachment members 126 are coupled to the changing mat 120 in a manner that allows engagement with corresponding receiving members 118 formed on the bag member 110, as described more fully below. In a particular embodiment, the changing mat 120 includes one or more inner layers of padding material (not visible), such as quilted fiberfill, foam rubber, or the like, covered by an outer shell of durable covering material. A variety of covering  
10 materials may be used for the durable outer shell, including, for example, nylons, polyesters, any type of washable plastic materials, or any other suitable polymeric or non-polymeric materials. In a presently preferred embodiment, the changing mat 120 (and bag member 110) is constructed of durable, washable materials such that if it becomes soiled, it may be removed from the bag member 110, washed and dried in conventional washing and drying  
15 appliances, and easily reattached to the bag member 110.

FIGURES 2 and 3 are front perspective and side elevational views, respectively, of the diaper changing assembly 100 of FIGURE 1 in a closed position 104. Similarly, FIGURE 4 is a rear elevational view of the diaper changing assembly 100 of FIGURE 2. As best shown in FIGURE 3, in the closed position 104, the changing mat 120 is folded up and  
20 engaged with a side panel of the bag member 110. The attachment members 126 on the changing mat 120 may be firmly secured with the receiving members 118 on the bag member 110 to hold the changing mat 120 in the closed position 104. If desired, a secondary securing member 130, such as a strap with snaps or hook and loop securing devices, may be used to further secure the changing mat 120 in the closed position 104 (shown in phantom lies in  
25 FIGURE 2), and may extend entirely across the opening of the bag member 110 (FIGURE 3) to permit the bag member 110 to be closed for transport. Alternately, a zipper or other closing mechanism 132 (FIGURE 4) may be added along the upper edges of the side panels of the bag member 110 to allow the bag member 110 to be closed. As further shown in  
30 FIGURE 4, the rear panel of the bag member 110 may be equipped with one or more additional pockets 132 for convenient access to supplies, changing items, etc.



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In operation, the bag member 110 may be placed on a suitable surface, and the changing mat 120 may be deployed (*e.g.* unfolded) from its stowed position proximate the outer surface of the bag member 110 into the open position 102. During the deployment of the changing mat 120, the bag member 110 remains substantially unchanged, and no  
5 disassembly or modification of the bag assembly 110 is necessary. Furthermore, prior to and during the deployment of the changing mat 120, since the changing mat 120 is without storage pockets or compartments, no unloading of any compartments is necessary. Next, a wearer of a diaper may be positioned on the changing mat 120, preferably with a head of the wearer positioned on the pillow member 124. A previously installed diaper may then be  
10 removed from the wearer (if not already removed), and a diaper may then be installed on the wearer. The wearer may then be removed from the changing mat 120, and the changing mat may be redeployed into the closed position 104 proximate the outer surface such that the changing mat occupies the stowed position external to the bag member 110 and without modification of the bag member 110. The changing mat 120 may then be secured to the bag  
15 member 110 by securing the first and second attachment devices 118, 126 so that the changing mat 120 remains in the stowed position 104 until it is needed again.

In one particular embodiment, the first and second attachment devices 118, 126 may be the corresponding projecting and receiving portions of a snap-type coupling. Alternately, any other suitable attachment devices may be used. For example, FIGURE 5 is an  
20 elevational view of an alternate embodiment of first and second coupling members 118A, 126A of the diaper changing assembly of FIGURE 2. In this embodiment, the second attachment device 126A includes a main hole (or ring) 127A having slotted extensions 129A projecting outwardly therefrom, and the first attachment device 118A comprises a rotatable projection that may be passed through the aperture of the second attachment device 126A and  
25 the rotated (or twisted) (*e.g.* in the direction of arrows 119A) to secure the changing mat 120 to the bag member 110.

Diaper changing apparatus in accordance with the present invention may provide significant advantages over prior art apparatus. First, there is no need for the parent or caregiver to disassemble the bag member 110 in order to form the changing mat 120. The  
30 changing mat 120 is readily accessible, and may be deployed without unloading or modifying



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the bag member 110. Supplies that may be needed during the diaper changing process remain located in a readily-accessible position within the bag member 110. This may improve the efficiency of the diaper changing process in comparison with alternate prior art devices, and may increase the parent's overall satisfaction with the diaper changing assembly. Furthermore, since the changing mat 120 is coupled to an outer surface of the bag member 110, it does not occupy precious space within the interior region of the bag member 110, thereby not diminishing the carrying capacity of the assembly.

Furthermore, since the changing mat 120 preferably does not include storage compartments, there is no need to unload portions of the apparatus in order to perform the diaper changing procedure. There is also no discomfort caused to the infant during the diaper changing procedure due to the presence of storage compartments in the changing mat 120. In this way, the satisfaction of both the care-giver and the infant may be improved.

It will be appreciated that a variety of alternate embodiments of diaper changing assemblies may be conceived in accordance with the teachings of the present disclosure. For example, the shape and size of the bag member and/or the changing mat may be varied from the particular embodiment described above and shown in the accompanying figures. Additional handles may be added, and the shape or location of such handles may be different from the specific handle design described herein. Of course, various color, patterns, decoration schemes, and other aesthetic details may be conceived.

Thus, while specific embodiments of the invention have been illustrated and described herein, as noted above, many changes can be made without departing from the spirit or scope of the present invention. Accordingly, the scope of the invention should not be limited by the disclosure of the specific embodiments set forth above. Instead, the invention should be determined entirely by reference to the claims that follow.